

REMARKS

The Applicants appreciate the Examiner's very quick and courteous Action.

Claims 1-33 are pending in the application. Claims 1-33 stand rejected.

Claim 12 is slightly amended to correct an inadvertent error to be sure that at least one additional component different from the previously recited components is present.

The Applicants are greatly appreciative of the Examiner's withdrawal of the rejection based on Awbrey, et al. in view of Ohsol.

The Applicants respectfully request reconsideration in view of the following remarks.

Rejection Under 35 U.S.C. §103 over Crump, et al.

The Examiner has rejected claims 9-21 and 27-33 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Pat. No. 5,389,594 to Crump, et al. for reasons of obviousness.

The Examiner finds that Crump discloses chelants used in oil drilling that comprise one of citric acid, glyceric acid, gluconic acid, or glycollic acid, such chelants being useful in water. The oil/chelant mixture is contended by the Examiner to further comprise sulfuric acid to reduce the pH of the mixture to about 4.2. The amount of chelant in the wash water is seen by the Examiner to be about 0.01 to about 40 weight percent and corrosion inhibitors are included in the composition. See Crump, column 1, lines 16-27, column 11, lines 57-65, column 13, lines 22-29 and 57-64, column 14, lines 1-14, and column 16, lines 27-50. Presumably, the Examiner concludes that the rejected composition claims are obvious from these disclosures of Crump, et al.

The Applicants respectfully traverse.

Applicants would respectfully point out that dependent claim 21 is a method claim depending from independent method claim, and thus is not a composition claim like the rest of the claims in the rejected group.

To support an obviousness rejection, the Examiner has the initial burden of establishing a *prima facie* case of obviousness of the pending claims over the cited prior art, *In re Oeticker*, 977 F.2d 1443, 1445; 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). As will be concluded below, the Examiner has not established a *prima facie* case of obviousness based on Crump, et al. alone.

Claims 9-11 and 27-28 recite a composition for transferring metals and/or amines from a hydrocarbon phase to a water phase that comprise water, a water-soluble hydroxyacid *and a mineral acid*, where the pH of the composition is 6 or below.

Claims 12-13 recite a composition for transferring metals and/or amines from a hydrocarbon phase to a water phase that comprise water, a water-soluble hydroxyacid *and an additional component that is an alcohol solvent, a corrosion inhibitor, a demulsifier, a scale inhibitor, metal chelants, wetting agents and mixtures thereof*, where the pH of the composition is 6 or below.

Claims 14-20 and 29-33 all relate to treated crude oil emulsions where *crude oil* is a required component of the treated emulsions.

The Applicant respectfully submits that none of these compositions are obvious from Crump, et al.

Crump, et al. discloses certain new degradable chelants having sulfonate groups (title and Abstract therein) which are not at issue here. The Examiner contends that Crump, et al. discloses chelants in oil drilling and alleges that such chelants may be citric acid, glyceric acid, gluconic acid, or glycolic acid and that it is obvious to include such chelants in compositions such as the above, but this is factually incorrect.

In truth, the reference only very generally discloses that prior art chelants and chelants of their invention might be useful in a long list of applications. In the portions of Crump, et al. that the Examiner notes as specifically reciting citric acid, glyceric acid, gluconic acid, or glycolic acid (column 16, lines 27-50), no mention is made of a particular application or use, much less (1) compositions that have mineral acids, (2) compositions having crude oil or (3) compositions having an additional component that is an alcohol

solvent, a corrosion inhibitor, a demulsifier, a scale inhibitor, metal chelants, wetting agents and mixtures thereof. In particular, the Examiner's attention is respectfully directed to column 1, lines 16-27 noted by the Examiner:

Chelants are used in a variety of applications including
food processing,
soaps,
detergents,
cleaning products,
personal care products,
pharmaceuticals,
pulp and paper processing,
water treatment,
metalworking and metal plating solutions,
textile processing solutions,
fertilizers,
animal feeds,
herbicides,
rubber and polymer chemistry,
photofinishing, and
oil field chemistry.

Some of these activities result in chelants entering the environment. For instance, agricultural uses or detergent uses may result in measurable quantities of the chelants being in water. It is, therefore, desirable that chelants degrade after use.

Oil field chemistry is only listed at the end of a very long list of applications, and no specific utility within the broad field of oil field chemistry is given, nor are any particular chelants suggested, supposed or hinted at for *any* of these very general application classes. In another instance at column 5, lines 40-59, Crump, et al. notes for his *novel* chelants:

Chelants *of the invention* are useful, for instance,
in food products vulnerable to metal-catalyzed spoilage or discoloration;
in cleaning and laundering products for removing metal ions, e.g. from hard water, that may reduce the effectiveness, appearance, stability, rinsibility, bleaching effectiveness, germicidal effectiveness or other property of the cleaning agents;
in personal care products like creams, lotions, deodorants and ointments to avoid metal-catalyzed oxidation and rancidity, turbidity, reduced shelf-life and the like;

in pulp and paper processing to enhance or maintain bleaching effectiveness;
in pipes, vessels, heat exchangers, evaporators, filters and the like to avoid or remove scaling,
in pharmaceuticals;
in metal working;
in textile preparation, desizing, scouring, bleaching, dyeing and the like;
in agriculture as in chelated micronutrients or herbicides;
in polymerization or stabilization of polymers;
in photography, e.g. in developers or bleaches;
in the oil field such as for drilling, production, recovery, hydrogen sulfide abatement and the like. (Emphasis added.)

However, as noted, these applications relate to the chelants of the Crump, et al. invention. The claims herein do not recite the Crump, et al. inventive chelants, only prior ones, so column 5, lines 40-59, Crump, et al. is not appropriate or relevant to the invention claimed herein, only the column 1, lines 16-27, teaching is and as noted this section is only a very general, amorphous list of potential applications. Further, simply because the novel Crump, et al. chelants are taught as useful for the column 5 applications, there is no reason to suppose or suspect that the more conventional, prior art chelants would have any utility at all for the column 5 applications. Crump, et al. also discloses and mentions no particular chelant for no particular application. Crump, et al. give no examples relating to any oil field chemistry, much less one that relates to compositions of the subject claims. Most of the examples given relate to laundry detergents and the biodegradability thereof. Indeed, the Crump, et al. teachings quoted by the Examiner in columns 13 and 14 only relate to cleaning formulations, washing compositions, and detergent formulations.

It is true that the mineral acid sulfuric acid is mentioned in column 11, lines 57-66 of Crump, et al., but this is only in the context of replenishing the lower valence metal chelate – please see column 11, lines 59-60, preferably done by electrochemical regeneration – please see particularly column 11, line 67 to column 12, line 19. A composition of the prior art chelates *per se* with a mineral acid is *not* disclosed or taught by the reference; such acids are only disclosed to be present in a replenishing or regeneration procedure.

The Applicants respectfully submit that at best Crump, et al. supposes an entire research program to try known chelants in each of the broad applications listed. The USPTO Board of Patent Appeals and Interferences stated in the case of *Ex Parte Obukowicz*, 27 U.S.P.Q.2d 1063 (B.P.A.I. 1992) that a prior art reference that only gives general guidance and is not at all specific as to the particular form of the claimed invention and how to achieve it may make a certain approach “obvious to try” but does not make the claimed invention obvious, citing *In re O’Ferrell*, 853 F.2d 894, 7 U.S.P.Q.2d 1673, 1681 (Fed. Cir. 1988). “Obvious to try” has long been held not to constitute obviousness, *In re O’Farrell*, 853 F.2d 894, 903, 7 U.S.P.Q.2d 1673, 1680-81 (Fed. Cir. 1988). A general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out, *In re Deuel*, 51 F.3d 1552, 1559, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995). Thus, for this reason alone, the Applicants respectfully submit that a *prima facie* obviousness rejection has not been made.

The recent *KSR v. Teleflex* U.S. Supreme Court case addressed “obviousness to try”.

The same constricted analysis led the Court of Appeals to conclude, in error, that a patent claim cannot be proved obvious merely by showing that the combination of elements was “obvious to try.” *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve *a problem* and there are *a finite number of identified, predictable solutions*, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103. *KSR International Co. v. Teleflex, Inc.* 550 U.S. ____ 17, 127 S.Ct. 1727 (April 2007) slip opinion (Emphasis added.)

This decision involved the obviousness of a mechanical, adjustable accelerator pedal for vehicles where there were a number of references and patents concerned with the pivot points of the pedals and sensors therefore. However, the situation here is not that in *KSR v. Teleflex* because there is not simply “a” single problem in providing a mechanical accelerator having an adjustable position with respect to the driver. Instead, there is a long list of merely supposed, potential

applications: food processing, soaps, detergents, cleaning products, personal care products, pharmaceuticals, pulp and paper processing, water treatment, metalworking and metal plating solutions, textile processing solutions, fertilizers, animal feeds, herbicides, rubber and polymer chemistry, photofinishing, and oil field chemistry. Furthermore, there is not “a finite number of identified, predictable solutions”, but rather instead a very large, nearly infinite number of prior art chelants that might or *might not* work in each of very large list of applications.

More specifically, Crump, et al. gives *no* help to one of ordinary skill in the art about *which* chelants, much less that hydroxyacids, *should* be used in *which* applications, much less which chelants are to be used with *mineral acids* to give the compositions of claims 9-11 and 27-28. Further, Crump, et al. gives no suggestion, hint or motivation about *which* chelants, much less that hydroxyacids, *should* be used in compositions that also contain *an additional component that is an alcohol solvent, a corrosion inhibitor, a demulsifier, a scale inhibitor, metal chelants, wetting agents and mixtures thereof* as recited in claims 12-13. And in particular, Crump, et al. presents no motivation, hint or suggestion about *which* conventional chelants, much less that hydroxyacids, *should* be used in crude oil emulsions where *crude oil* is a required component of the treated emulsions as recited in claims 14-20 and 29-33 herein. Indeed, the term “crude oil” is used nowhere in Crump, et al., and the Applicants respectfully submit that it is particularly impossible for this latter group of claims to be obvious from the Crump, et al. disclosure since the reference does not so much as mention crude oil.

Finally, the Applicants respectfully submit that Crump, et al. does not simply disclose citric acid, glyceric acid, gluconic acid, or glycolic acid, but rather a much longer list of organic chelants at column 16, lines 27-50:

Further organic compounds which act as chelants for calcium and may be present in detergent formulations are *polycarboxylic acids, hydroxycarboxylic [sic] acids and aminocarboxylic acids* which are usually used in the form of their water-soluble salts.

Examples of polycarboxylic acids are *dicarboxylic acids of the general formula $\text{HOOC}-(\text{CH}_2)_m-\text{COOH}$ where m is 0-8*, and also

maleic acid, methylenemalononic acid, citraconic acid, mesaconic acid, itaconic acid, noncyclic polycarboxylic acids having 3 or more carboxyl groups in the molecule, e.g. tricarballic acid, aconitic acid, ethylenetetra-carboxylic acid, 1,1,3-propanetetra-carboxylic acid, 1,1,3,3,5,5-pentanehexa-carboxylic acid, hexanehexa-carboxylic acid, cyclic di- or poly-carboxylic acids, e.g. cyclopentanetetra-carboxylic acid, cyclohexanehexa-carboxylic acid, tetrahydrofuranetetra-carboxylic acid, phthalic acid, terephthalic acid, benzene-tricarboxylic, -tetra-carboxylic or -penta-carboxylic acid and mellitic acid.

Examples of hydroxymonocarboxylic and hydroxypolycarboxylic acids are glycollic acid, lactic acid, malic acid, tartronic acid, methyltartronic acid, gluconic acid, glyceric acid, citric acid, tartaric acid and salicylic acid. (Emphasis added.)

Crump, et al. does not identify or suggest *which* of these chelants are suitable or even might be suitable for *which* application, much less in compositions containing mineral acids, crude oil or one of the additional components. Applicants respectfully submit that one can find most of the components listed in Crump, et al. in the Chemical Marketing Reporter or the CAS listing of chemical compounds as well, but that does not tell one having ordinary skill in the art which one to use in which composition or in *which* application or *how* to select it – and neither does Crump, et al.

The Applicants respectfully submit further that in chemical cases it is often not predictable which chemical compound in a list of potential candidates are suitable in a particular application. Where no more direction is given about which particular prior art chelates (for some unknown reason discounting the novel chelates touted by Crump, et al.) would work for many of the specific applications merely mentioned in the reference, it must be concluded that it is not predictable or obvious which such chelates would work at all in any given use or method or composition.

The Applicants respectfully submit that for all of these reasons a *prima facie* obviousness rejection of these claims has not been made.

Rejection Under 35 U.S.C. §103 over Reynolds, et al. in view of Crump, et al.

The Examiner has rejected claims 1-8 and 22-25 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Pat. No. 4988433 to Reynolds, et al. in view of Crump, et al. for reasons of obviousness.

The Examiner finds that Reynolds discloses a method of transferring metals from a crude oil to a water phase including contacting the oil with water that already includes the chelant. The pH of the mixture is adjusted so that it remains above 2. See Reynolds, column 3, lines 12-39. The Examiner also finds that Reynolds discloses the electrically directed precipitation of metals (see Reynolds, column 1, lines 49-65).

The Examiner admits that Reynolds does not disclose the chelating compounds claimed.

However, the Examiner contends that Crump discloses chelants used in oil drilling that comprise one of citric acid, glyceric acid, gluconic acid, or glycollic acid, such chelants being useful in water. The oil/chelant mixture further comprises sulfuric acid to reduce the pH of the mixture to about 4.2. The amount of chelant in the wash water is about 0.01 to about 40 weight percent and corrosion inhibitors are included in the composition. See Crump, column 1, lines 16-27, column 11, lines 57-65, column 13, lines 22-29 and 57-64, column 14, lines 1-14, and column 16, lines 27-50.

Further, the Examiner alleges that Crump discloses that such chelants are useful in oil drilling and production (see Crump, column 5, lines 40-59).

Therefore, the Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Reynolds to include chelants used in oil drilling that comprise one of citric acid, glyceric acid, gluconic acid, or glycollic acid in order to use chelants that are useful in oil drilling and production.

The Applicants must again respectfully traverse.

To support an obviousness rejection, the Examiner has the initial burden of establishing a *prima facie* case of obviousness of the pending claims over the

cited prior art, *In re Oeticker, id.* As will be shown below, the Examiner has not established a *prima facie* case of obviousness based on Reynolds, et al. in view of Crump, et al.

The Applicants stipulate that Reynolds, et al. does use a desalting process to remove metals and does claim acetic acid. Applicants respectfully submit that the only other example given is benzoic acid. Thus, Reynolds, et al. are specific to monobasic acids. As the Examiner admits, there is no claim or teaching to the water-soluble hydroxyacids required by the instant method claims. However, as established above in the discussion of the previous rejection, to which the Examiner's attention is respectfully directed, Crump, et al. does not provide this deficiency for many reasons. A primary reason that Crump, et al. does not supply this deficiency is that Crump, et al. discloses a very long list of prior art chelants and does not illuminate or suggest that water-soluble hydroxyacids from the very large group listed is suitable or acceptable for *any particular* application, except detergent, cleaning or washing compositions, much less the claimed method of transferring metals and/or amines from a hydrocarbon phase to a water phase in any context.

Furthermore, as also settled in the discussion of the rejection based on Crump, et al. alone, above, Crump, et al. discloses a lengthy list of supposed uses and applications for the prior art chelants – without so much as hinting *which* chelants would be suitable for *which* applications. At best, the supposed combination of Reynolds, et al. with Crump, et al. might be for a very large research program to try to identify which of the novel Crump, et al. chelants would be useful in the Reynolds, et al. hydrocarbonaceous feedstocks demetalation – it is respectfully submitted that there would be even *less* motivation to consider using the *conventional* chelants in the Reynolds, et al. method since one having ordinary skill in the art reviewing both references would be more inclined to use the new and novel chelants of Crump, et al. – but these are not the chelants recited in the claims at issue.

Furthermore, all of the method claims subject to the present rejection recite “using electrostatic coalescence”. The Reynolds, et al. reference does not suppose, teach or suggest anything about using electrostatic coalescence and neither does Crump, et al. for that matter. Thus, for this reason alone the method claims which require “using electrostatic coalescence” cannot be obvious from the references taken together. The Applicants respectfully submit that for this reason alone, a *prima facie* obviousness rejection of the method claims has not been made. Where is the teaching, suggestion or motivation *in the references* for using electrostatic coalescence?

The Applicants further respectfully submit that for all of the reasons established above, especially taken together, a *prima facie* obviousness rejection of the method claims has not been made.

It is respectfully submitted that the arguments presented above overcome the rejection. Reconsideration and allowance of the claims are respectfully requested. The Examiner is respectfully reminded of his duty to indicate allowable subject matter. The Examiner is invited to call the Applicants’ attorney at the number below for any reason, especially any reason that may help advance the prosecution.

Respectfully submitted,
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